## DOWNTOWN NASHVILLE BICYCLE PARKING STUDY

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Metro Nashville
PUBLIC WORKS





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#### 1. Study Synopsys

Like motorists, cyclists require convenient and secure parking facilities for their vehicles within close proximity to their destination. The lack of adequate bicycle parking facilities and fear of theft are deterrents to cycling as a real transportation option within Metro Nashville. Increasing the availability of well-designed bicycle racks and long-term end-of-trip facilities, such as covered parking and shower facilities will encourage cycling within Nashville. The objective of the Bicycle Parking Study is to evaluate the existing conditions and evaluate the extent of the needs to for well-designed and appropriate end-of-trip facilities by establishing guidelines and objectives to meet the increasing needs for bicycle facilities in the Downtown Metro Nashville Area.

The availability of well-designed, secure and strategically-placed final destination facilities provides the following benefits:

- Increases the convenience to cyclists who currently commute to their destinations
- Encourages the use of bicycles as a viable mode of transportation for commuting to common destinations
- Increases the availability of a destination's parking facilities, especially important in urban areas of Nashville such as downtown



#### To procure these benefits, Metro should implement initiatives to:

- 1. Evaluate, improve and expand bicycle parking at or near shops, schools, bus and rail stations, community centers and government buildings by way a development of a detailed plan.
- 2. Evaluate new cycle parking designs, based on functionality, aesthetics and costs
- 3. Encourage businesses to establish bicycle parking, lockers and shower facilities at workplaces
- 4. Ensure developers provide adequate facilities for cyclists
- 5. Improve education of new bicycle parking facilities by news announcements and by providing cycle parking maps to allow cyclists to discover the new facilities



#### To evaluate initiatives, the following measures should be used:

- 1. Number of cycle parking spaces or lockers installed by Metro on Metro properties
- 2. Number of cycle parking spaces installed in Public right-of-ways
- 3. Number of cycle parking spaces secured as part of new developments
- 4. Number of educational/news announcements made by media outlets
- 5. Number of private businesses that provide bicycle parking and shower facilities at the workplace

#### 2. Evaluation of Existing Facilities

In September 2009, a Bicycle Parking Field Inventory was conducted to collect data on all parking facilities within the major urban areas of Metro Nashville. The inventory was performed by photo-logging all existing end-of-trip bicycle facilities using a camera which geotagged the collected image to the GPS location (Latitude/Longitude) to secure exact locations. The inventory primarily focused on end-of-trip bicycles facilities including outdoor bicycle racks, covered racks, bicycle lockers and shower/locker facilities available for public use. The limit to the inventory is shown within the maps in Appendix A.

The field inventory identified quantity and quality of existing facilities, if a facility did not meet the guideless as defined in the Facility Type; it was not considered a viable existing facility. The following table summarizes the inventory findings. The detailed inventory can be found in Appendix A.

# Facility Type Example Inventory Count Outdoor Bicycle Racks (short term): Non-enclosed racks that are appropriately designed as to not damage the bicycle wheels. Intended for short term use only. 52 locations 254 spaces



#### **Covered Bicycle Racks (long term):**

Bicycle racks that possess sufficient shelter to protect the bicycle from the elements (i.e. rain). Such would include racks within parking garages, under awnings or racks having dedicated shelters. Covered racks are still generally considered long-term unless they are not fully enclosed.



3 locations

22 spaces

#### **Bicycle Lockers (long term):**

Similar benefits of Covered Bicycle Racks but provide a dedicated compartment for each bicycle for long-term storage.



0 available for public use

Shower/Locker Facilities: These end-of-trip facilities augment parking facilities by providing access to adjacent existing shower/locker facilities (such as a community center) or dedicated facilities specifically for the cyclist.



0

The location of the facilities inventoried is also presented in map representation and photolog within Appendix A.

#### 3. Analysis of Existing Facilities

Once the inventory was completed, the locations were imported and reviewed within Metro's geographic information system (GIS). The GIS tool enabled the existing locations to be overlaid upon other layers that contained probable destinations for cyclists such as public libraries, Metro government offices, parks, retail/restaurant clusters and other likely end-of-trip

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locations. The analysis criteria used included *short-term* bicycle parking should (1) be located no farther than the closest auto parking, (2) be within 100 feet from the main entrance to the facility being accessed and (3) be visible or have visible directive signage when observed from the entrance to the facility. For *Long-Term* parking, near proximity to the facility entrance was desired, but not a requirement.

The assessment of the facilities using the analysis criteria identified the following:

- 1. Bicycle parking facilities within Metro as a whole is very limited
- Many popular destinations had inadequate or no end-of-trip bicycle facilities
- 3. At times, many popular destinations had racks that were full (i.e. Public Library) forcing cyclist to tie their bicycles to street trees and other street appurtenances.
- 4. Some instances bicycles parking facilities existed but were improperly placed or would require signage for a cyclist to easily identify the location of the facility.
- 5. Many landmark locations (Second Avenue venues, the Country Music Hall of Fame, Broadway, Farmer's Market and others) possessed no end-of-trip facilities.

#### 4. Recommendations

As discussed, based on the inventory analysis, bicycle parking is currently limited or nonexistent in many of Metro's popular destination areas. Facilities that should be addressed, in no particular order, include:

- 1. **Municipal Buildings**: Metro-owned buildings should be equipped with end-of-trip facilities to the greatest extent feasible. End-of-trip facilities should be designed to accommodate Metro employees as well as visitors, noting that the needs of each group may be different.
- 2. Public Right-of-ways adjacent to or adjoining on-street parking: In most cases, the accommodation of bicycles in the right-of-way typically equates to a number freed auto parking. Providing such accommodation not only supports Nashville's commitment to becoming a more bicycle friendly city, it also reduces parking demand on the limited auto parking resources.
- 3. **Metro Schools**: Public Elementary, middle and high schools should have adequate endof-trip facilities. In addition, private schools should be encouraged to follow suit.
- 4. **Major Transit Stops**: Major transit stops, such as the Donelson and Riverfront stations for the RTA rail line should be equipped with adequate end-of-trip facilities.



5. **Multi-family and Retail commercial**: New multi-family and retail commercial locations should accommodate cyclist's needs. New and renovation permits should require such facilities. At present, Metro's zoning ordinance only includes a very general requirement in regards to bicycle parking.

Because determination of specifically-named locations having needs for end-of-trip facilities will require substantial field studies and analysis beyond the scope of this plan, an area-based approach was undertaken to identify priority areas for a Phase I initiative. Analysis, based on the area-based approach, identified the following which are without or greatly underserved by end-of-trip facilities:

- 1. Metro Public Schools specifically magnet schools that utilize public transportation
- 2. Public Parks Commercial core destinations including restaurants, groceries and retail outlets
- 3. Metro/Public Office buildings

These needs locations are further identified within the maps in Appendix A.

#### 5. Next Steps

In addition to the development of this plan, Metro has recently been very successful in making great strides to increase access to end-of-trip facilities. The most recent success included successfully integrating bicycle racks as a component in most all recent Metro capital projects. In addition, in coordination with Metro Public Works, the Metro Arts Commission recently

published a request for proposal for the creation of numerous *Artistic Bicycle Racks* at key locations throughout Metro. The *Artistic Bicycle Racks* project will bring special attention and education to Metro's commitment to making Nashville one of the most bicycle-friendly cities in the U.S. The initial 5 *Artistic Bicycle Rack* locations are shown on the maps in Appendix A.



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While Metro is progressing with the initiative to create the needed end-of-trip facilities, to successfully continue the implementation, several specific steps will be required:

#### Legislation

A bike parking ordinance should be drafted that addresses the specific requirement for bike parking by land use. This ordinance should contain suitable specifics for long-term and short-term spaces specific and in context with the land use. The ordinance should specify that Bike parking requirements shall be effective for all new construction and substantial renovations. A recommended minimum requirement for Bicycle Parking is included in Appendix B. Also provided in Appendix B is an example long-term parking layout which accommodates 10 bicycles.

#### Develop a Detailed Implementation and Funding Plan

While this study has addressed the general needs for end-of-trip facilities for cyclists in general, a specific implementation plan should be pursued to generate specific benchmarks with an associated timeline. In addition, detailed costs estimates should be prepared to enable the relation of the benchmarks and timelines to a funding requirement. Subsequently, the implementation plan should also produce detailed engineering standard details and specifications to promote proper design and consistency for all bike parking elements constructed within public and private projects.

#### Education and Public Awareness Plan

Education and Public Awareness of the facilities that Metro implements should be performed comprehensively. Metro should consider providing residents and visitors with information via media outlets, the Convention and Visitors Bureau as well as the city's existing *bikeways* website. Such information should include maps of facilities and relation to popular destinations as well as instructional information that details the proper use of the facilities. In addition, Metro should provide encouragement to organizations that create and implement *Green Travel Plans*. *Green Travel Plans* are organized plans supported by executives and management of private and public organizations that promote "green" activities such as cycling to work. Metro should create and implement a model *Green Travel Plan* of its own as an example to other organizations.

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#### Secure Funding for Construction of Public Facilities

Funding will be required to implement the required facilities as outlined in the Implementation Plan. Funding should be dedicated in association within the existing Bicycle Program, but a portion of the funding should be dedicated to planning, managing and constructing end-of-trip facilities.

#### Executive Order for Inter-departmental coordination

The Mayor should execute an executive order promoting interdepartmental coordination to accomplish the goals in this plan. The executive order should authorize the Metro Bicycle and Pedestrian Coordinator along with e Bicycle and Pedestrian Advisor Committee to oversee the implementation of the plan.

Continued success will include significant emphasis on completing the implementation steps outlined. Organizational as well as financial support will be key to the success of a Bike Parking program.



#### Appendix A: Inventory and Needs Photolog and Maps

	Private Bicycle Locker Parking			
A		Davey Crockett Building on James Robertson Pkwy	not available for public use	
В		Andrew Jackson State Office Building	not available for public use	
	Private	e Covered Bicycle Parking		
С		Viridian Building Parking Garage - Inside	not available for public use	



	Public Covered Bicycle Parking			
D	Pandiap Nandiap Nandiap Nandiap Nandiap Nandiap Nandiap	Courthouse Square Parking Garage - Inside	2 each 8 total	
E		Nashville Public Library Parking Garage - Inside	2 each 8 total	
F	MAN	William R Snodgrass Tennessee Tower	2 each 6 total	
	Public Bicycle Parking			



1	Korean Veterans Blvd (south side) between 1st Av S and 2nd Av S	2 each 4 total
2	Korean Veterans Blvd (South Side) between 2nd Av S and 3rd Av S	2 each 4 total
3	Korean Veterans Blvd (South Side) between 3rd Av S and 4th Av S	2 each 6 total
4	Korean Veterans Blvd (South Side) between 3rd Av S and 4th Av S	2 each 6 total
5	Korean Veterans Blvd (North Side) between 3rd Av S and 2nd Av S	2 each 6 total



6		Korean Veterans Blvd (North Side) between 2nd Av S and 1st Av S	2 each 4 total
7		Frist Center Rear Parking Lot	5 total
8		The Gulch at 12th Av S	2 each 6 total
9	September 1	The Gulch at 12th Av S	2 total
10		The Gulch at 11th Av S	2 each 6 total



11	Schermerhorn Symphony Center Corner of Demonbreun St and 4th	2 each 20 total
12	Corner of 5th Av S and Demonbreun St	5 total
13	Park in front of Hilton Hotel on 4th Av S and Demonbreun St	5 total
14	Sommet Center	7 total
15	Convention Center entrance on Commerce	2 total



16		Convention Center entrance on Commerce	2 total
17		Dowintown YMCA on Church St	5 total
18	Φ Φ	Nashville Public Library main entrance on Church St	2 each 4 total
19	Φ Φ	Nashville Public Library main entrance on Church St	2 each 4 total
20		Capitol Blvd	2 total



21		Capitol Blvd	2 total
22	ф\ 	Church St and 2nd Av S (South Side)	2 total
23		Church St & 3rd Av N (South Side)	2 total
24		Courthouse on Union St	2 each 10 total
25		Courthouse on 3rd Av N	2 each 10 total



26		Courthouse above parking deck	2 each 10 total
27		Birch on 2nd Av N	2 each 6 total
28		Andrew Jackson State Office Building	2 each 4 total
29	9	Music City Central 5th Av N and Charlotte Av	2 total
30		Music City Central Charlotte Av and 5th Av N	2 total



31	Music City Central Charlotte Av	2 total
132	Music City Central Charlotte Av	2 total
33	Music City Central Charlotte Av & 4th Av N	2 total
34	Music City Central/ Municipal Auditorium 5th Av	2 total
35	Music City Central/Municipal Auditorium 4th Av	2 total



36	Deaderick St and 6 <sup>th</sup> Avenue South/ West	2 total
37	Deaderick St and 5 <sup>th</sup> Avenue North/ East	2 total
38	Deaderick St and 5 <sup>th</sup> Avenue South/ East	2 each 4 total
39	Deaderick St and 5 <sup>th</sup> Avenue North/ West	2 total
40	Deaderick St and 5 <sup>th</sup> Avenue South/ West	2 total



41	Deaderick St and 4 <sup>th</sup> Avenue North/ East	2 total
42	Deaderick St and 4 <sup>th</sup> Avenue South/ East	2 total
43	Deaderick St and 4 <sup>th</sup> Avenue North/ West	2 total
44	Deaderick St and 4 <sup>th</sup> Avenue South/ West	2 total
45	Deaderick St and 3 <sup>rd</sup> Avenue North/ East	2 total



46	Deaderick St and 3 <sup>rd</sup> Avenue South/ East	2 each 4 total
47	Davey Crockett Building on James Robertson Pkwy	2 each 4 total
48	LP Field by Rivier	2 each 24 total
49	Greenway at end of Freeland Station Rd	2 each 10 total
50	Greenway at end of Freeland Station Rd	2 each 10 total



51		Z Alexander Library	7 total		
52		The Pinnacle (still under construction)	2 each 8 total		
	Artistic Bicycle Parking (Install Spring 2010)				
53		Fulton Complex At main entrance	TBD  Min of 4		
54		Farmers Market 8 <sup>th</sup> Ave side	TBD Min of 8		
55	100 5 5007	Farmers Market Bicentennial Park side	TBD Min of 8		



56	Demonbreun Street at round about	TBD  Min of 4
57	Demonbreun St at roundabout	TBD  Min of 4
58	Commerce Street Between 4 <sup>th</sup> Ave and 5 <sup>th</sup> Ave	TBD  Min of 2
59	Commerce Street Between 4 <sup>th</sup> Ave and 5 <sup>th</sup> Ave	TBD Min of 2
60	Church Street Across from main entrance to Public Library	TBD Min of 4



### Appendix B: Draft Recommended Zoning Code Minimum Requirements for Bicycle Parking

Land Use <sup>1</sup>	Short Term Spaces <sup>2</sup>	Long Term Spaces <sup>3</sup>			
Residential Uses					
Multi-Family	1 per 10 dwelling units	1 per dwelling units			
Boarding House	Non required	2, or 1 per 10 residents			
Institutional Uses					
Cultural Center	None Required	2, or 1 per 6000 sf			
Religious Institution	None Required	2, or 1 per 4000 sf			
Day Care	None Required	1 per 10,000 sf			
Educational Uses					
Business School	None Required	2, or 1 per 20,000 sf exclusive of dormitories			
College or University	None Required	2, or 1 per 20,000 sf exclusive of dormitories			
Community Education	None Required	2, or 1 per 20,000 sf exclusive of dormitories			
Vocational School	None Required	2, or 1 per 20,000 sf exclusive of dormitories			
Dormitory	None Required	2 or 1 per 10 residents			
Fraternity/Sorority House	None Required	2, or 1 per 10 residents			
Elementary School	None Required	2 per 4 <sup>th</sup> -6 <sup>th</sup> classroom			
Middle School	None Required	2 per classroom			



Land Use <sup>1</sup>	Short Term Spaces <sup>2</sup>	Long Term Spaces <sup>3</sup>
High School	None Required	4 per classroom
Office Uses		
Financial Institution	1 per 3,000 sf	2, or 1 per 3,000 sf
General Office	1 per 8,000 sf	2, or 1 per 8,000 sf
Leasing/Sales Office	1 per 8,000 sf	2, or 1 per 8,000 sf
Medical Uses		
Animal Hospital	2, or 1 per 20,000 sf	2, or 1 per 8,000 sf
Assisted-care living	2, or 1 per 20,000 sf	2, or 1 per 8,000 sf
Hospice	1 per 20,000 sf	None Required
Hospital	1 per 20,000 sf	2, or 1 per 8,000 sf
Medical Office	1 per 20,000 sf	2, or 1 per 8,000 sf
Non-residential Drug Treatment	1 per 20,000 sf	2, or 1 per 8,000 sf
Outpatient Clinic	1 per 20,000 sf	2, or 1 per 8,000 sf
Commercial Uses		
Automobile Parking	None required	1 per 30 auto spaces
Retail and Service	2, or 1 per 8,000 sf	1 per 10,000 sf
Transportation Uses		
Airport/Heliport	Per Metro Review	Per Metro Review
Boatdock (Commercial)	Per Metro Review	Per Metro Review
Bus Station/landport	Per Metro Review	Per Metro Review
Bus Transfer Station	Per Metro Review	Per Metro Review
Commuter Rail	Per Metro Review	Per Metro Review



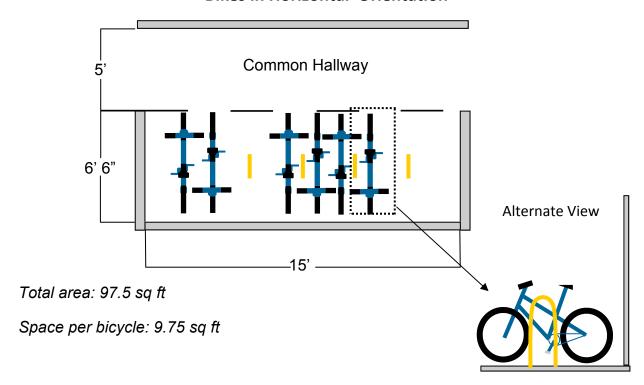
Land Use <sup>1</sup>	Short Term Spaces <sup>2</sup>	Long Term Spaces <sup>3</sup>		
Park and Ride Lot	Per Metro Review	Per Metro Review		
Recreational and Entertainment Uses				
Greenway	Per Metro Review	Per Metro Review		
Park	Per Metro Review	Per Metro Review		
Stadium Arena/Convention Center	Per Metro Review	Per Metro Review		
Temporary Festival	Per Metro Review	Per Metro Review		
Theater	Per Metro Review	Per Metro Review		
Zoo	Per Metro Review	Per Metro Review		
Fairground	Per Metro Review	Per Metro Review		

<sup>&</sup>lt;sup>1</sup>Land uses not listed have not bicycle parking requirement
<sup>2</sup>Short term spaces are defined as indoor or outdoor racks or storage locations
<sup>3</sup>Long term spaces are defined as indoor storage locations



#### Example: Long Term Bicycle Room Which Provides 10 Bicycle Spaces

#### **Bikes in Horizontal Orientation**



#### **Bikes in Vertical Orientation**

